

Date: Wed, 24 Aug 94 04:30:15 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
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Precedence: Bulk
Subject: Ham-Ant Digest V94 #279
To: Ham-Ant

Ham-Ant Digest Wed, 24 Aug 94 Volume 94 : Issue 279

Today's Topics:

 disguse 2M antennaa
 Longwire AM antenna question

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Problems you can't solve otherwise to brian@ucsd.edu.

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We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Wed, 24 Aug 1994 00:21:48 GMT
From: agate!howland.reston.ans.net!cs.utexas.edu!chpc.utexas.edu!
news.utdallas.edu!feenix.metronet.com!dave.des@ames.arpa
Subject: disguse 2M antennaa
To: ham-ant@ucsd.edu

My motive was not disguise, but economy: I replaced my FM antenna with a
2M whip (actually, I never bought a FM antenna...) and built a crude
frequency diplexer so I could use one antenna for both. The diplexer was
just a few lengths of coax 1/4 wave (in dielectric, not air) long at 2M.
It makes a funny noise if I transmit with the FM radio on, but I haven't
burned up the radio yet. the only problem is that the FM port is a dead
short at AM, so I have to disconnect the 2M rig if I want to listen to
AM. The result was a single antenna on the car and no holes to drill.

The idea of the diplexer is to first match the 2M antenna, then tap the
line with a feed for the FM broadcast antenna in such a way that the 2M
radio doesn't notice any difference. The tap is just a 1/4 wave line (at
2M), followed by a T-junction (I just soldered the mess together, rather
than buy a T) which consists of a line of any length to the FM radio and
an open-circuited 1/4-wave line (at 2M). The open-circuited stub looks

like a short at 2M, which shorts out the FM radio at 2M frequencies. The other 1/4 wave line makes that short look like an open at 2M, which makes the tap appear to not be there to the 2M radio.

I'm sure that there is some loss to the FM broadcast signal path, but I never notice it here (Dallas/Fort Worth area). I'm sure that there are more elegant solutions, but this was cheap and easy to build, and I've almost forgotten it's there. I think that one more stub would allow AM broadcast reception as well, I haven't messed with it

It would be best to use a fancy network analyzer (I had access to one), but you can get close enough by trimming an open-circuited stub in parallel with an known antenna or dummy load until it has no effect at the 2M transmit frequency of primary interest. It should be good enough over the rest of the band.

I'll take a shot at an ASCII drawing:

```
(ant)
|  any length  (T)          any length
|-----|------(FM)
          |
          | 1/4
          |
          |----- (o. c.)
    -    |<--1/4-->
    any  |
length  |
    -   (2M)
```

Good luck! Comments would be appreciated!

Dave KD5KZ <dave.des@metronet.com>

Date: Tue, 23 Aug 94 19:16:13 CDT
From: juniper.almaden.ibm.com!VNET.IBM.COM@uunet.uu.net
Subject: Longwire AM antenna question
To: ham-ant@ucsd.edu

I know this doesn't fall into the realm of amateur radio, since the question deals with the commercial AM band, but I couldn't think of a better place.

Anyway, I want to improve reception of a weak AM station about 60 miles away on 580 kHz. I have the room to put in an external longwire antenna so I am leaning in that direction.

Is the best longwire a single horizontal wire (vs dipole, etc.)? I may have room for 1/4 wavelength at 580 Khz (400 some feet), certainly room for 1/8 wavelength. I assume the longer the better, more for the gain rather than the larger fraction of a wavelength? And will getting the length to an exact fraction of a wavelength make a huge difference in pulling in a particular AM station?

Is the downlead from the antenna to the radio critical for AM, impedance-wise? Or can one use any plain old coax (I have a ton of RG-6)? The distance from antenna to radio might be close to 100 feet, and the downlead will be underground, in conduit at least part of the way. I shouldn't have big problems driving an eight foot grounding rod at the downlead end of the antenna to provide the ground connection.

The toughest part could be trying to locate 500+ feet of bare stranded 14 guage for the longwire around here. It's almost 100 miles to a decent electronics place.

(Football is starting soon, I'm within range of the Packer Radio Network for the first time in ten years, and I need another way to get the Packers since all football will be scrambled on satellite this season, phooey!)

Robert
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End of Ham-Ant Digest V94 #279
